

Patent
Atty. Dkt. No. CARA/0013

IN THE CLAIMS:

Please amend the claims according to the following replacement claim set:

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1. (Currently Amended) An apparatus for securing an aspherical ocular globe, comprising:
a ring having an annular vacuum channel that is connectable to a vacuum source and an aperture sized to receive and expose the cornea;
wherein the annular vacuum channel has an aspherical ocular globe-engaging surface comprising an aspherical inferior engaging surface and a an aspherical superior engaging surface.
2. (Original) The apparatus of claim 1, wherein the aperture is non-circular.
3. (Original) The apparatus of claim 1, wherein the aperture is a shape selected from the group consisting of circular, elliptical, oval and ovoid.
4. (Original) The apparatus of claim 1, wherein the inferior engaging surface and the superior engaging surface are defined by a major meridian and a minor meridian having different radii.
5. (Original) The apparatus of claim 1, wherein the inferior engaging surface and the superior engaging surface are defined by a plurality of meridians having different radii.
6. (Previously Amended) The apparatus of claim 1, wherein the inferior engaging surface has a non-circular plane section that is formed by a non-circular wall, a beveled wall, or a variable length wall.
7. (Previously Amended) The apparatus of claim 1, wherein the superior engaging surface has a non-circular plane section that is formed by a non-circular wall or a beveled wall.

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8. (Previously Amended) The apparatus of claim 1, wherein the inferior and superior engaging surfaces each has a shape selected from the group consisting of elliptical, oval, ovoid, and combinations thereof.
9. (Original) The apparatus of claim 1, wherein the inferior and superior engaging surfaces each has one or more concave surfaces that mate with a convex surface of the ocular globe and corneal region.
10. (Original) The apparatus of claim 1, wherein the ring is made from a material selected from stainless steel, titanium, a synthetic plastic, rubber, and combinations thereof.
11. (Currently Amended) A kit for use with a microkeratome having a cutting head assembly, comprising:
a plurality of rings for securing aspherical ocular globes, wherein each of the plurality of rings has:
(1) an aperture sized to receive and expose a cornea,
(2) a fixed dimension interface for interfacing with the cutting head assembly,
(3) an annular vacuum channel that is connectable to a vacuum source, wherein the annular vacuum channel has an aspherical ocular globe-engaging surface comprising an aspherical inferior engaging surface and a an aspherical superior engaging surface,
wherein two or more of the rings differ in a manner selected from aperture dimension or shape, superior engaging surface dimension or shape, inferior engaging surface dimension or shape, and combinations thereof.
12. (Original) The kit of claim 11, wherein the aperture is non-circular.

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13. (Original) The kit of claim 11, wherein the aperture is a shape selected from the group consisting of circular, elliptical, oval and ovoid.
14. (Original) The kit of claim 11, wherein the inferior engaging surface and the superior engaging surface are defined by a major meridian and a minor meridian having different radii.
15. (Original) The kit of claim 11, wherein the inferior engaging surface and the superior engaging surface are defined by a plurality of meridians having different radii.
16. (Previously Amended) The kit of claim 11, wherein the inferior engaging surface has a non-circular plane section that is formed by a non-circular wall, a beveled wall or a variable length wall.
17. (Previously Amended) The kit of claim 11, wherein the superior engaging surface has a non-circular plane section that is formed by a wall or a beveled wall.
18. (Previously Amended) The kit of claim 11, wherein the inferior and superior engaging surfaces each has a shape selected from the group consisting of elliptical, oval, ovoid and combinations thereof.
19. (Original) The kit of claim 11, wherein the inferior and superior engaging surfaces each has one or more concave surfaces that mate with a convex surface of the ocular globe and corneal region.
20. (Original) The kit of claim 11, wherein the plurality of suction rings are made from a material selected from stainless steel, titanium, a synthetic plastic, rubber, and combinations thereof.
21. (Currently Amended) A microkeratome for performing a lamellar keratotomy of an aspherical ocular globe, comprising:

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a ring having an annular vacuum channel that is connectable to a vacuum source, an aperture sized to receive and expose the cornea, and an interface, wherein the annular vacuum channel has an aspherical ocular globe engaging surface comprising an aspherical inferior engaging surface and a an aspherical superior engaging surface;

a blade suitable for corneal resections;

a cutting head for carrying the blade over the guide ring through a cutting path defined by the guide ring;

an adjustable cornea compression device connected to the cutting head for at least partially compressing the cornea ahead of the blade so as to set the corneal resection to a desired shape and thickness;

means for driving the cutting head and the cornea compression device across the guide ring.

22. (Original) The microkeratome of claim 21, wherein the aperture is non-circular.

23. (Original) The microkeratome of claim 21, wherein the aperture is a shape selected from the group consisting of circular, elliptical, oval and ovoid.

24. (Original) The microkeratome of claim 21, wherein the inferior engaging surface and the superior engaging surface are defined by a major meridian and a minor meridian having different radii.

25. (Original) The microkeratome of claim 21, wherein the inferior engaging surface and the superior engaging surface are defined by a plurality of meridians having different radii.

26. (Previously Amended) The microkeratome of claim 21, wherein the inferior engaging surface has a non-circular plane section that is formed by a wall, a beveled wall or a variable length wall.

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27. (Previously Amended) The microkeratome of claim 21, wherein the superior engaging surface has a non-circular plane section that is formed by a wall or a beveled wall.

28. (Previously Amended) The microkeratome of claim 21, wherein the inferior and superior engaging surfaces each has a shape selected from the group consisting of elliptical, oval, ovoid and combinations thereof.

29. (Original) The microkeratome of claim 21, wherein the inferior and superior engaging surfaces each has one or more concave surfaces that mate with a convex surface of the ocular globe and corneal region.

30. (Original) The microkeratome of claim 21, wherein the aspherical ocular globe-engaging surface is suitable for contacting an ocular globe and corneal region having a refractive error selected from astigmatism, hyperopia and myopia.

31. (Original) The microkeratome of claim 21, wherein the cutting path is horizontal.

32. (Original) The microkeratome of claim 21, wherein the cutting path is pendular.